

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of)	
)	
Service Rules for the 698-746, 747-762)	WT Docket No. 06-150
and 777-792 MHz Bands)	
)	
Revision of the Commission's Rules to)	CC Docket No. 94-102
Ensure Compatibility with Enhanced 911)	
Emergency Calling Systems)	
)	
Section 68.4(a) of the Commission's Rules)	
Governing Hearing Aid-Compatible)	WT Docket No. 01-309
Telephones)	
)	
Biennial Regulatory Review—Amendment)	WT Docket No. 03-264
of)	
Parts 1,22,24,27, and 90 to Streamline and)	
Harmonize Various Rules Affecting Wireless)	
Radio Services)	
)	WT Docket No. 06-169
)	
Former Nextel Communications, Inc.)	
Upper 700 MHz Guard Band Licenses)	
and Revisions to Part 27 of the)	
Commission's Rules)	WT Docket No. 06-229
)	
Implementing a Nationwide, Broadband,)	
Interoperable Public Safety Network in)	
the 700 MHz Band)	WT Docket No. 96-86
)	
Development of Operational, Technical and)	
Spectrum Requirements for Meeting)	
Federal,)	
State and Local Public Safety		
Communications		
Requirements Through the Year 2010		

COMMENTS OF VANU, INC.

Vanu®, Inc. hereby files these comments in the above-captioned proceeding.

INTRODUCTION

About Vanu, Inc.

Vanu, Inc. grew out of DARPA-sponsored research on software radio initiated at the Massachusetts Institute of Technology. Following the proud tradition of American entrepreneurship, Vanu, Inc. was formed in 1998 to commercialize the research, and has deployed several software radio cellular networks in the United States and Canada. Along the way, Vanu has achieved many industry milestones, including being awarded the first-ever FCC certification for a software defined radio system. The open architecture of Vanu, Inc. systems moves wireless infrastructure from vertically-integrated hardware to a horizontally-layered industry model with open interfaces, similar to the computer industry. Vanu, Inc. sees open systems as essential for speeding innovation and bringing the United States back into prominence in what has increasingly become a foreign-dominated industry.

DISCUSSION

Findings and Major Recommendations

Vanu commends the Commission for seeking comment on the proposal of Frontline Wireless, LLC relating to the feasibility and desirability of creating an upper 700 MHz “E Block.” Frontline’s proposal addresses the critical unmet need for a nationwide public safety network and proposes the creation of the first truly open commercial wireless network.

The Commission has shown a commitment to solving public safety communications problems by recognizing the need for the construction of a national wireless broadband

network for our nation's public safety community.¹ What is needed is a nationwide public safety network that supports interoperability. In the past, this has not been technically feasible, since each public safety agency generally makes its own buying decision regarding technologies in its network and there are sound reasons to make different technology choices. Since historical networks could only be built to support a single technology, they were not interoperable. Advances in software defined radio technology, such as the Vanu Anywave® system, have made it possible to run a single network that support multiple standards that are otherwise incompatible today. In times of emergency, software radio also enables the commercial network and spectrum to be converted to support public safety, increasing the bandwidth available to public safety.

However, construction of a new nationwide public safety network would be a significant burden on the American taxpayer, which is why we support Frontline's proposal, which shifts the cost of building a network to support public safety to the "E Block" licensee.

Open Access

The 1968 Carterfone decision² directed that new devices could be attached directly to the public telephone network. This unleashed market forces that gave rise to new products including the answering machine, and culminating with broadband Internet access today. Despite the obvious benefits of open networks, wireless networks have remained closed domains.

A combination of factors, including lack of publicly available content and lack of suitable supporting technologies, required early networks to limit what subscribers were able to access and how they were able to access it. The technological constraints that created these limits are dissolving quickly. Today, multi-mode network equipment is realizable through software defined radio systems. In addition, the Internet and World

¹ *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Developing of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2012*, Ninth Notice of Proposed Rule Making, 21 FCC Rcd 14837 (2006) .

² Carterfone, 13 FCC 2d 420 (1968).

Wide Web now provide a multitude of sources of content and means of connectivity. The historical reasons for closed networks no longer apply.

Open access will allow consumers and businesses to use networks in the manner that is best suited for such businesses and consumers. By allowing them the flexibility to explore and invent new ways of using networks, society benefits. In recent years, the United States has been the focal point of several important innovations relating to telecommunications, computing and the combination of the two. Failure to adopt an open access approach could slow the pace of innovation domestically and encourage innovation relating to open networks to occur elsewhere. The 700 MHz band auction is the best opportunity we will have for the foreseeable future to introduce open networks, market forces and competition into nationwide broadband networks.

Capital Cost of Wholesale Networks, Bidding Preferences

The Commission noted that the ability of small business to attract the necessary capital to implement a nationwide service was a primary concern with respect to offering bidding credits to small businesses. The Commission should reconsider its stated concern regarding capital requirements for the build out of a nationwide “E Block” license because a wholesale network using Anywave technology has a broader opportunity to generate revenue and a smaller capital expense associated with its buildout. Not only has technology changed the equation with respect to the capital required to build out nationwide networks, but small businesses are also likely to be the most motivated to pursue newer technologies that offer lower cost of service for both public safety and commercial users.

The ability of the Vanu Anywave system to support multiple standards simultaneously demonstrates that a wholesale network providing services to multiple constituents is feasible. In fact, we believe the opportunity to share capital and operating outlays across multiple standards and a higher number of users makes the Anywave or other multi-mode systems the most cost effective to deploy in many cost sensitive, but performance demanding scenarios.

In addition, other changes in the wireless industry have also reduced the capital outlay required for building new networks. In particular the sharing of towers has greatly

reduced one of the largest capital outlays required to build a new network and the emergence of hosted core network solutions eliminates the capital outlay required for switching equipment. For these reasons we urge the commission to reconsider its concern regarding capital requirements for a nationwide “E Block” licensee and the impact that concern had regarding availability of bidding preferences.

Preference for United States Industry

As noted above, failure to adopt an open access approach domestically will likely result in the leadership in innovation for open networks to be driven by foreign-based telecommunications equipment manufacturers.

The Vanu Anywave base station is composed of off-the-shelf servers (from companies such as Dell, HP, IBM, and Intel), connected via gigabit Ethernet to radio heads, which may be connected in turn to any of a number of commercially available power amplifiers (from companies such as Andrew or Powerwave) and antennas. The base station is connected to the rest of the network over IP-based networking equipment (from companies such as Cisco). This open architecture based on off-the-shelf components such as those described above not only allows carriers to benefit from greater competition in their supply chain, it also relies on American based technology companies to compete with radio access systems that increasingly are available predominantly from foreign based telecommunication equipment manufacturers.

Respectfully submitted,

/s/ Andrew D. Beard

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